ducted as with us. There are too few officers, and everybody has too much to do; nevertheless many of the reports exhibit an amount of zeal and industry deserving of all the more recognition on account of the difficulties under which much of the work is done.

From this point Mr. Warburg explains and describes in some detail what has been effected by the combined action of Kew and the Indian botanic gardens in the introduction, resulting in the extensive cultivation, of economic plants of the first importance, such as the cinchona, tea, and coffee, the cultivation and manufacture of which have developed into industries of incalculable value. He further alludes to the cultivation of rubber-trees, ipecacuanha, fibre-yielding plants, &c., which is, in many instances, still in a more or less experimental stage. He also enters into particulars and comparisons of the climate of different districts in its relations to cultivation, and altogether his Report is an interesting and instructive one, containing much information new to the English public. He specially mentions the great interest taken in the Madras gardens by Sir Mountstuart Grant-Duff, and the material assistance he extended to Prof. Lawson. And he concludes with a brief review of the literature directly or indirectly connected with the botanic gardens of India, culminating in Sir Joseph Hooker's gigantic undertaking, "The Flora of British India." With regard to the intimate connection between Kew and the Colonial and Indian gardens, Mr. Warburg thinks it is at present most beneficial, though he looks forward to the time when they shall have developed so far as to be less dependent on a central institution.

SCIENTIFIC SERIALS.

Revue d'Anthropologie, troisième série, tome iii. fasc. 1 (Paris, 1888).—On the colour of the eyes and hair among the non-nomadic Tunisian tribes, by Dr. R. Collignon, based on the observations of Capt. Rebillet and Lieut. Fannezo. These observations, which were conducted in accordance with the methods employed in France for similar investigations, refer to more than 2000 individuals belonging to the "sedentary" or settled populations of the towns and rural districts. The men observed being all regular soldiers, the tables do not refer to any nomads of Arab race, since all the dwellers in tents are exempt from conscription in Tunis. Expressed in general terms, among these 2030 individuals, dark eyes occurred in 1543 cases, or 7·6 per cent., and light eyes in 69 cases, or 3·5 per cent.; while dark hair occurred in 1887 cases, or 92 per cent., and light hair only in 7 cases, or 0·4 per cent. On considering the data obtained from a comparison of the tables referring to different districts, it is found that the blond type occurs only sporadically, and almost exclusively in the littoral settlements, on which account Dr. Collignon thinks it may be assumed that its presence in the Tunisian population is due to the incidental amalgamation of foreign elements through invasion or immigration by more northern races.—On the colour of the eyes and hair in Denmark, by Herr Soren Hansen (communicated to the Society by Dr. Topinard). From this paper we learn that observations made on 2000 males of the age of twenty, belonging to the southern and eastern districts of Jutland, yielded the following results: light, *i.e.* blue, eyes, 1527; dark eyes, 65; leaving 408 of medium colour. In regard to the colour of the hair it was found necessary to establish four groups, which gave the following figures: dark brown, 306; medium, 1267; light (blond), 333; and red, 94. From this it would appear that the majority of the population have blue eyes, and medium brown, or chestnut, hair. A further analysis of Herr Hansen's tables shows that while the perfect brown type—*i.e.* where both hair and eyes are dark—occurs only in 2·7 per cent.; blond hair and light eyes are met with in 16·2 per cent. Finally the curious circumstance has been deduced that while light eyes are twenty-four times more frequent than dark ones, light hair is only seven times more frequent than dark hair; hence Dr. Topinard is led to ask whether the explanation of this peculiarity may not have to be sought in some general law by which in a mixed race, descended from blond and dark races, the eyes may be more generally transmitted from the former, and the hair from the latter.—On recruiting in the cantons of St.-Omer, by Dr. H. Favier. The enormous difference in the cantons north and south of St.-Omer in the number of persons available for military service has been attracting much notice among French officers of late years. According to M. Costa, who wrote on the subject in 1866, these differences are due to hygienic causes; the district north of St.-Omer, where the rejections are only 227 in 1000, being well adapted to agricultural and other rural pursuits, while in the southern canton, where the rejections amount to 342 in 1000 the lands are almost all marshy, exposing the inhabitants to fevers and other malarian influences by which the race is deteriorated. Dr. Favier does not believe that these causes affect the question in any way, but, even if they did so when M. Costa wrote, statistics prove that of late years, more especially since the stricter law of conscription of 1872 has been put into force, the south canton has shown a gradual diminution in the numbers of rejections; and while he denies the action of malarian causes or the influence of differences of ethnic origin between the people of the two cantons, he believes that to industrial centres, such as d'Arques in the southern canton, may very possibly be ascribed certain conditions antagonistic to the success of recruiting.—On the "*castellets*" of Mont Sainte-Baume in Provence, by Dr. Beranger-Féraud. The presence of numerous little heaps of stones on the higher peaks of Mont Sainte-Baume has repeatedly arrested the attention of strangers, and the fact of their having been deposited by the hand of man is now confirmed by Dr. B. Féraud, who last year made the ascent of the mountain for the purpose of investigating their character and purpose. These so-called "*castellets*" (little castles) are either composed of several stones forming a rude sort of pyramid, or of one large stone inserted in a fissure of the rocky soil. Although widely distributed, they are most frequent in the vicinity of the oratory of Saint-Pilon, where they are found at an elevation of nearly 1000 feet, close to the edge of the vertical wall of rock forming the northern boundary of the range. On inquiry he learnt that these structures were also locally designated *moulouns de joye* (heaps of joy), and that they were not alone intended to testify to the successful ascent of the pilgrims to the summit of St. Pilon, but were frequently designed to propitiate St. Magdalen, to whom prayers are made on the spot for approval of the special maiden whom the worshipper may desire to marry. In the latter case the mound is visited by the builder at the end of a year, and if he finds the stones undisturbed he considers that the saint approves of his choice; if, however, the heap is broken up, this is generally regarded as a decisive barrier against the intended marriage. In this superstition, Dr. B. Féraud sees a survival of the ancient usage of erecting stone monuments as altars, pillars, menhirs, &c., to commemorate some important personal event.—On inequality amongst men, by M. de Lapouge. In this address the view is boldly advocated that a man is what his birth made him, and that education can do no more for him than develop the pre-existing germs derived from his progenitors in accordance with the laws of heredity. This reasoning is extended to classes, nations, and races, who are assumed to be unequal, and incapable of attaining to an equal degree of perfection. The writer divides men into four classes, in the first of which he places those possessed of creative and initiative faculties above their fellows, while it is to the relative numerical preponderance of this class over the others that he refers the undoubted superiority of one race over another. He thus sees in the dolichocepalic blonds the most favoured of all the races of humanity, since, from the dawn of history, all heroes and leaders among men have belonged to this type. In modern times the Anglo-Saxon race has owed its superiority to the preponderance of this dolichocephalic element. He believes that France is suffering from the diminution of this type in its population, together with the rising predominance of the brachycephalic type to which the lower classes of the community belong, while he anticipates as inevitable a great deterioration of the general national character through the amalgamation of the two. Similarly he sees in the present movement for raising the negro races a deep source of danger in the future to the more highly gifted Aryan races, who may in time find themselves beaten down by the brute force of teeming masses of inferior brachycephalic peoples. Such are some of the leading points in M. de Lapouge's treatise, which, notwithstanding its redundancy of diction, and the dogmatism with which certain views are maintained, is a highly interesting, suggestive, and learned contribution to ethical inquiry.

Bulletin de l'Académie Royale de Belgique, December 1887.—On some new derivatives of normal heptylic alcohol compared with their homologues, by C. Winssinger. After describing the mode of formation and special properties of normal heptylic alcohol, of the chlorides of heptyl, heptylic mercaptan, oxy-

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sulphide, sulphone, and some other new bodies, the author develops some general considerations on the homologous series to which belong the heptylic sulphureted derived substances. These considerations throw fresh light on the evolution of the physical and chemical properties of compound bodies through the various species of a common genus. Thus it is shown that the chemical character of the heptylic combinations must be considered as the development of properties whose source or origin is already found in the lower terms of the series of which heptyl is a member.—A contribution to the study of the development of the epiphysis and of the third eye in reptiles, by M. Francotte. This third eye, of the invertebrate type, already described by Graaf and Spencer, is here exhaustively studied in a large number of reptilian embryos from the province of Namur, in all of which it is very distinctly traced from the epiphysis at the roof of the thalamencephalon to the complete development of the pineal organ. In one species of lizard this eye passes through a series of successive phases each realized in a permanent way in one or other of the adult reptiles. But in all of them the optic nerve has disappeared, which connected the organ with the nerve-centres for a short time in the embryonic state.—This number of the *Bulletin* contains an exhaustive memoir on the fresh-water fishes of Belgium, by Baron Edm. de Selys Longchamps.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, February 16.—"A new Method of determining the Number of Micro-organisms in Air." By Prof. Carnelley, D.Sc., and Thos. Wilson, University College, Dundee. Communicated by Sir Henry Roscoe, F.R.S.

This is a modification of Hesse's well-known process. It consists essentially in the substitution of a flat-bottomed conical flask for a Hesse's tube. Its chief advantages are: (1) much smaller cost of flask and fittings as compared with Hesse's tubes; (2) very much fewer breakages during sterilization; (3) great economy in jelly; (4) freedom from leakage during sterilization; (5) results not vitiated by aërial currents.

"Notes on the Number of Micro-organisms in Moorland Air." By the same Authors.

A number of determinations made last August "on the heather" in the north of Forfarshire show that the pure air from the hills and moors far removed from towns was free from Bacteria, but contained on the average 3·5 moulds per 10 litres of air. In winter the number would be still less.

Linnean Society, March 1.—Mr. Carruthers, F.R.S., President, in the chair.—An interesting collection of ferns from the Yosemite Valley was exhibited by Mr. W. Ransom, who also showed some admirable photographs of rare plants, many of them of the natural size.—Mr. J. E. Harting exhibited a coloured drawing, life-size, of a South American game bird (the Rufous Tinamu) which has been successfully introduced into this country at Brightlingsea, Essex, by Mr. J. Bateman, and made some remarks on its affinities, peculiarities of structure, and habits. In a discussion which followed Prof. Mivart, Mr. Christy, and Mr. W. H. Hudson took part, the last-named giving some account of the bird from personal observation of its habits in the Argentine Republic.—The first paper of the evening was then read by Mr. E. G. Baker on a new genus of Cytinaceæ from Madagascar. This curious plant, to which the author has given the name of *Botryocytinus*, grows parasitically on the trunks of a tree of the natural order *Hamamelideæ*. Its nearest ally is *Cytinus*, of which the best known species grows on the roots of the *Cistuses* of the Mediterranean basin. The Madagascar plant is without any stem, and the sessile flowers grow in clusters, surrounded by an involucre. Each cluster is unisexual, and the ovary is unicellular, with about a dozen parietal placentæ and innumerable minute ovules. It was discovered during a recent exploration of the Sakalava country, by the Rev. R. Baron, of the London Missionary Sooiety.—The next paper, by Mr. J. F. Cheeseman (communicated by Sir Joseph Hooker, F.R.S.), was entitled "Notes on the Fauna and Flora of the Kermadec Islands," and as regards the flora might be considered as supplementary to a paper on the flora of these islands, published by Sir Joseph Hooker more than twenty years ago (Journ. Linn. Soc., 1856). These islands, situated about 450 miles north-east of New Zealand, between that country and Fiji, were shown to be of volcanic origin, with a fauna and flora resembling to a great extent those of New Zealand. A few land birds were noted as common to New Zealand; and to the list of plants drawn up by Sir Joseph Hooker, from collections made by Macgillivray, several new species were added by Mr. Cheeseman, chiefly ferns. A discussion followed, and in illustration of Mr. Cheeseman's remarks, Mr. J. G. Baker exhibited specimens of a new endemic *Duvalia* closely allied to the well-known *D. canariensis* of the Canary Islands and Madeira.

Geological Society, February 17.—Annual General Meeting.—Prof. J. W. Judd, F.R.S., President, in the chair.—The Secretaries read the Reports of the Council and of the Library and Museum Committee for the year 1887. The President presented the Wollaston Gold Medal to Mr. Henry Benedict Medlicott, F.R.S. He also handed to Dr. Archibald Geikie the balance of the proceeds of the Wollaston Donation Fund for transmission to Mr. John Horne, and the Murchison Medal for transmission to Prof. J. S. Newberry. The balance of the proceeds of the Murchison Geological Fund was handed to Dr. Henry Woodward for transmission to Mr. Edward Wilson; and the President presented the Lyell Medal to Prof. H. Alleyne Nicholson, one moiety of the balance of the proceeds of the Lyell Geological Fund to Mr. Arthur Humphreys Foord, and the second moiety of the balance of the proceeds of the Lyell Geological Fund to Mr. Thomas Roberts. The President then read his Anniversary Address, which we have already printed.—The ballot for the Council and Officers was taken, and the following were duly elected for the ensuing year:—President: W. T. Blanford, F.R.S. Vice-Presidents: John Evans, F.R.S.; Prof. T. McKenny Hughes; Prof. J. Prestwich, F.R.S.; Henry Woodward, F.R.S. Secretaries: W. H. Hudleston, F.R.S.; J. E. Marr. Foreign Secretary: Sir Warington W. Smyth, F.R.S. Treasurer: Prof. T. Wiltshire. Council: W. T. Blanford, F.R.S.; John Evans, F.R.S.; L. Fletcher; A. Geikie, F.R.S.; Henry Hicks, F.R.S.; Rev. Edwin Hill; W. H. Hudleston, F.R.S.; J. W. Hulke, F.R.S.; Prof. T. McKenny Hughes; Prof. T. Rupert Jones, F.R.S.; Prof. J. W. Judd, F.R.S.; R. Lydekker; Lieut.-Col. C. A. McMahon; J. E. Marr; E. T. Newton; Prof. J. Prestwich, F.R.S.; Prof. H. G. Seeley, F.R.S.; Sir Warington W. Symth, F.R.S.; W. Topley; Rev. G. F. Whidborne; Prof. T. Wiltshire; Rev. H. H. Winwood; Henry Woodward, F.R.S.

February 29.—W. T. Blanford, F.R.S., President, in the chair.—The following communications were read:—An estimate of post-Glacial time, by T. Mellard Reade. The author showed that there exists on the coasts of Lancashire and Cheshire an important series of post-Glacial deposits which he has studied for many years. The whole country to which his notes refer was formerly covered with a mantle of low-level marine boulder-clay and sands, and the valleys of the Dee, Mersey, and Ribble were at one time filled with these Glacial deposits. These Glacial beds have been much denuded, especially in the valleys, where the rivers have cleared them out, in some cases, to the bed rock. Most of this denudation occurred during a period of elevation succeeding the deposition of the low-level boulder-clay. On this eroded surface and in the eroded channels lie a series of post-Glacial beds of a most interesting and extensive nature. They consist of estuarine silt and *Scrobicularia* clay covered by extensive peat-deposits, containing the stools of trees rooted into them. Upon these lie, in some places, recent tidal silts, and on the coast margin blown sand and sand dunes. The series of events represented by the denudation of the low-level boulder-clay and the laying down of these deposits is as follows:—(1) Elevation succeeding the Glacial period, during which time the boulder-clay was deeply denuded in the valleys. (2) Subsidence to about the 25-feet contour, when the estuarine silts and clays were laid down. (3) Re-elevation, representing most probably a continental connection with the British Isles, during which time the climate was milder than at present, and big trees flourished where now they will not grow. (4) Subsidence to the present level, the submersion of the peat and forest-beds, the laying down of tidal silt upon them, and the accumulation of blown sand along the sea-margin extending to a considerable distance in an inland direction. It was estimated, from a variety of considerations, that these events, all posterior to the Glacial period, represent a lapse of time of not less than 57,500 years, allotted as follows: 40,000 years for the elevation succeeding the Glacial period, measured by the denudation of the

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